

# PATENT ABSTRACTS OF JAPAN

(11)Publication number : 2000-354863

(43)Date of publication of application : 26.12.2000

(51)Int.Cl.

C02F 1/32

B01J 21/06

B01J 35/02

C02F 1/58

C02F 1/72

(21)Application number : 11-208086

(71)Applicant : KUDO NORIO

(22)Date of filing : 16.06.1999

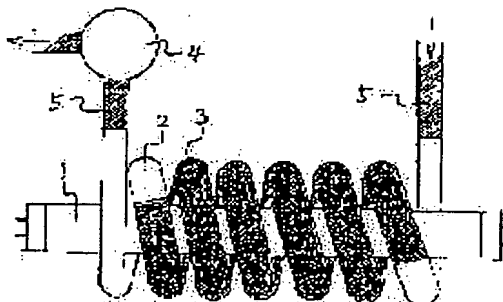
(72)Inventor : YAMAZAKI SUZUKO

## (54) WASTEWATER TREATMENT SYSTEM

(57)Abstract:

**PROBLEM TO BE SOLVED:** To enhance the efficiency of a photocatalyst detoxifying a wastewater containing an organochlorine compd. while enabling the recovery and reutilization of the photocatalyst.

**SOLUTION:** A glass pipe 2 being spirally wound around a light source pipe 1 emitting ultraviolet rays is packed with pelletized titanium oxide 3, and a wastewater containing an organochlorine compd. is passed through the glass pipe 2. Chloride ions formed by the decomposition of the organochlorine compd. in wastewater are reacted with calcium carbonate to produce calcium chloride. This calcium chloride is utilized as a desiccant or an antifreezing agent.



## LEGAL STATUS

[Date of request for examination]

[Date of sending the examiner's decision of rejection]

[Kind of final disposal of application other than the examiner's decision of rejection or application converted registration]

[Date of final disposal for application]

[Patent number]

[Date of registration]

[Number of appeal against examiner's decision of rejection]

[Date of requesting appeal against examiner's decision of rejection]

[Date of extinction of right]

**\* NOTICES \***

JPO and NCIP are not responsible for any damages caused by the use of this translation.

1. This document has been translated by computer. So the translation may not reflect the original precisely.
2. \*\*\*\* shows the word which can not be translated.
3. In the drawings, any words are not translated.

---

**CLAIMS**

---

[Claim(s)]

[Claim 1] The method which disassembles the organochlorine compound which fills up with the titanium dioxide of a pellet type the glass tube which surround light source tubing of ultraviolet radiation in the shape of a spiral, and is contained in wastewater.

---

[Translation done.]

\* NOTICES \*

JPO and NCIP are not responsible for any damages caused by the use of this translation.

1. This document has been translated by computer. So the translation may not reflect the original precisely.
2. \*\*\*\* shows the word which can not be translated.
3. In the drawings, any words are not translated.

---

DETAILED DESCRIPTION

---

[Detailed Description of the Invention]

[0001] The method which removes the organochlorine compound contained in [technical field to which invention belongs] wastewater [0002] The difficulty that the ozone which is toxic in addition to ultraviolet radiation must be used together in order to gather reaction effectiveness although titanium oxide was made to adhere to glass and is conventionally used with the binder as an organochlorine compound removal method which uses [Prior-art] titanium oxide as a photocatalyst is upwards, and it is [0003] in which recovery reuse of a catalyst is impossible. It is the technical problem of this invention not to need concomitant use of [Object of the Invention] ozone, and to enable recovery reuse of a catalyst.

[0004] The glass tube which surround the light source tubing 1 of the [The means for solving a technical problem] ultraviolet radiation in the shape of a spiral is filled up with the titanium oxide of a pellet type, and it lets wastewater pass.

[0005] The chlorine ion and calcium carbonate which disassembled and generated the organochlorine compound under [gestalt of implementation of invention] wastewater are made to react, a calcium chloride is manufactured, and it uses as a drying agent or an antifreezing agent.

[0006] It can use for wastewater of [effect-of-the-invention] dry-cleaning works, a chip fabrication factory, etc., and well water purification.

---

[Translation done.]

**\* NOTICES \***

JPO and NCIP are not responsible for any damages caused by the use of this translation.

1. This document has been translated by computer. So the translation may not reflect the original precisely.
2. \*\*\*\* shows the word which can not be translated.
3. In the drawings, any words are not translated.

---

**DESCRIPTION OF DRAWINGS**

---

[Brief Description of the Drawings]

[Drawing 1] It is the side elevation of this invention.

[Description of Notations]

1 is light source tubing.

2 is a glass tube.

3 is a titanium-dioxide pellet.

4 is a pump.

5 is a full run tube.

---

[Translation done.]

**\* NOTICES \***

JP0 and NCIP1 are not responsible for any damages caused by the use of this translation.

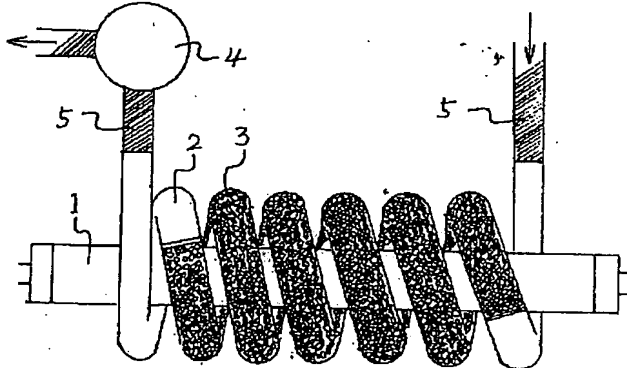
1. This document has been translated by computer. So the translation may not reflect the original precisely.
2. \*\*\*\* shows the word which can not be translated.
3. In the drawings, any words are not translated.

---

**DRAWINGS**

---

[Drawing 1]



---

[Translation done.]

(19) 日本国特許庁 (J P)

(12) 公開特許公報 (A)

(11) 特許出願公開番号

特開2000-354863

(P2000-354863A)

(43) 公開日 平成12年12月26日 (2000. 12. 26)

| (51) Int.Cl. <sup>7</sup> | 識別記号  | F I           | テ-マ-ト* (参考) |
|---------------------------|-------|---------------|-------------|
| C 0 2 F 1/32              |       | C 0 2 F 1/32  | 4 D 0 3 7   |
| B 0 1 J 21/06             |       | B 0 1 J 21/06 | M 4 D 0 3 8 |
| 35/02                     |       | 35/02         | J 4 D 0 5 0 |
| C 0 2 F 1/58              |       | C 0 2 F 1/58  | A 4 G 0 6 9 |
| 1/72                      | 1 0 1 | 1/72          | 1 0 1       |

審査請求 未請求 請求項の数 1 書面 (全 2 頁)

(21) 出願番号 特願平11-208086

(22) 出願日 平成11年6月16日 (1999. 6. 16)

(71) 出願人 594110011

工藤 憲男

北九州市小倉北区青葉2丁目7番8号

(72) 発明者 山崎 鈴子

山口県山口市大字吉田1677-1

Fターム(参考) 4D037 AA02 AA11 AB14 BA18 CA01  
CA12 CA13

4D038 AA02 AA08 AB14 BA02 BB06  
BB07 BB14 BB16

4D050 AA02 AA12 AB19 BB01 BC06  
BC09 CA06 CA14

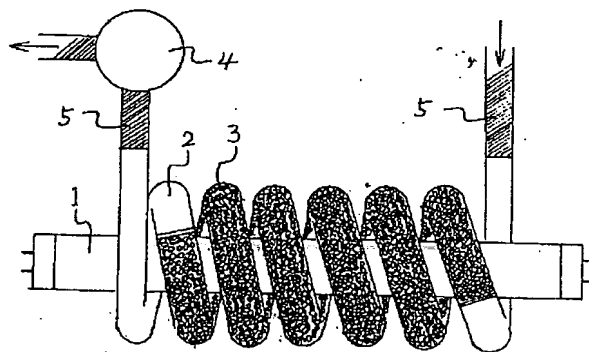
4G069 AA02 AA08 BA04A BA04B  
BA48A CA05 CA19 EA02X  
EA02Y FB79

(54) 【発明の名称】 排水処理方式

(57) 【要約】

【課題】 有機塩素化合物を含む排水を無害化する光触媒の効率を高めると同時に、触媒の回収再利用を可能にする。

【解決手段】 紫外光の光源管をスパイラル状に取り巻くガラス管を設け、その中にペレット状酸化チタンを充填して、有機塩素化合物を含んだ排水を通す。



## 【特許請求の範囲】

【請求項1】紫外光の光源管をスパイラル状に取り巻くガラス管に、ペレット状の二酸化チタンを充填し、排水に含まれる有機塩素化合物を分解する方式。

## 【発明の詳細な説明】

【0001】【発明の属する技術分野】排水に含まれる有機塩素化合物を除去する方式

【0002】【従来の技術】酸化チタンを光触媒とする有機塩素化合物除去法としては、従来、酸化チタンを結合剤でガラスに付着させて利用しているが、反応効率を上げるために、紫外光以外に毒性のあるオゾンを併用しなければならないという難点がある上に、触媒の回収再利用が不可能である

【0003】【発明が解決しようとする課題】オゾンの併用を必要とせず、かつ触媒の回収再利用を可能にすることが、本発明の課題である。

【0004】【課題を解決するための手段】紫外光の光\*

\* 源管1をスパイラル状に取り巻くガラス管にペレット状の酸化チタンを充填して排水を通す。

【0005】【発明の実施の形態】排水中の有機塩素化合物を分解して生成した塩素イオンと炭酸カルシウムを反応させて、塩化カルシウムを製造し、乾燥剤や凍結防止剤として利用する。

【0006】【発明の効果】ドライクリーニング工場や半導体工場などの排水や、井戸水の浄化に利用できる。

## 【図面の簡単な説明】

【図1】本発明の側面図である。

## 【符号の説明】

- 1は光源管
- 2はガラス管
- 3は二酸化チタンペレット
- 4はポンプ
- 5はフルランチューブ

【図1】

